

This listing of claims replaces, without prejudice, all prior versions and listings of claims in the application:

List of claims:

1. (Withdrawn) A method for the production of solid lubricant agglomerates comprising mixing particulate solid lubricant and an inorganic binder in the ratio of about 19 : 1 to about 1 : 19 by weight and adding a liquid to produce a mixture having about 5 to 60 weight % solids, drying the mixture to produce dry agglomerates, and classifying by size or milling and classifying by size the dry agglomerates to obtain a desired particle size cut.
2. (Withdrawn) A method as claimed in claim 28, in which an undersize particle fraction and an oversize particle fraction of agglomerates are produced by classifying followed by reprocessing the undersize agglomerate fraction by redispersing the agglomerate in the original liquid and reprocessing the oversize agglomerate particle fraction either by redispersing in the original liquid or by crushing and recovering the particle size that is in the desired particle size cut.
3. (Withdrawn) A method as claimed in claim 2 wherein, after the desired particle size cut is obtained by classifying, the binder in the desired particle size cut is rendered non-dispersible in the original liquid.
4. (Withdrawn) A method as claimed in claim 3, in which the solid lubricant is at least one lubricant selected from the group consisting of hexagonal boron nitride, graphite, calcium fluoride, magnesium fluoride, barium fluoride, tungsten disulphide and molybdenum disulphide particles.
5. (Withdrawn) A method as claimed in claim 4, adding a filler to the solid lubricant and binder in an amount up to 40 volume % of the solids.
6. (Withdrawn) A method as claimed in claim 4, in which the solid lubricant is hexagonal boron nitride and is mixed with the binder in a weight ratio of about 9 : 1 to 4 : 6 hexagonal boron nitride to binder.

7. (Withdrawn) A method as claimed in claim 6, in which the liquid is water and the binder is hydrous aluminum silicate that is stabilized at temperatures above 850°C in the desired particle size cut.

8. (Withdrawn) A method as claimed in claim 7, in which the binder is at least one of bentonite, fuller's earth or montmorillonite.

9. (Withdrawn) A method for the production of rounded, solid lubricant agglomerates comprising mixing particulate solid lubricant and an inorganic binder in a weight ratio in the range of about 19 : 1 to about 1 : 19 of solid lubricant to binder in water in a mixer to produce a slurry having about a 5 to 60 weight % solids, and drying droplets of the slurry to form dry, rounded, solid lubricant agglomerates.

10. (Withdrawn) A method as claimed in claim 9 comprising sizing the solid spherical agglomerates to produce an oversize fraction, an undersize fraction and a product fraction, pulping and recycling the oversize and undersize fractions to the mixer, and rendering the product fraction non-dispersible in the original liquid.

11. (Withdrawn) A method as claimed in claim 10, in which the solid lubricant is at least one lubricant selected from the group consisting of hexagonal boron nitride, graphite, calcium fluoride, magnesium fluoride, barium fluoride, tungsten disulfide and molybdenum disulphide particles.

12. (Withdrawn) A method as claimed in claim 11, in which the solid lubricant is mixed with the binder in a weight ratio of about 9 : 1 to 4 : 6 solid lubricant to binder.

13. (Withdrawn) A method as claimed in claim 12, in which the binder is hydrous aluminum silicate that is stabilized at temperatures above 850°C in the desired particle size cut.

14. (Withdrawn) A method as claimed in claim 9, in which the solid lubricant is hexagonal boron nitride and is mixed with the binder in a weight ratio of about 9 : 1 to 4 : 6 hexagonal boron nitride to binder powder.
15. (Withdrawn) A method as claimed in claim 11, in which the binder is at least one of bentonite, fuller's earth, montmorillonite, or combination thereof.
16. (Withdrawn) A method as claimed in claim 9, in which the solid lubricant is hexagonal boron nitride and is mixed with the binder powder in a weight ratio of about 9 : 1 to 4 : 6 hexagonal boron nitride to binder powder and slurried with water to produce a slurry containing about 20 to 30 weight % solids.
17. (Withdrawn) A method as claimed in claim 10, in which the solid lubricant is hexagonal boron nitride and is mixed with the binder in a weight ratio of about 9 : 1 to 4 : 6 hexagonal boron nitride to binder powder and is slurried with water to produce a slurry containing 5 to 60 weight % solids, and in which the binder powder is selected from the group consisting of bentonite, fuller's earth, montmorillonite and combinations thereof.
18. (Withdrawn) A method as claimed in claim 10, in which the solid lubricant is hexagonal boron nitride, is mixed with the binder in a weight ratio of about 8 : 2 hexagonal boron nitride to binder powder and slurried with water to produce a slurry containing about 20 to 30 weight % solids, and in which the binder is hydrous aluminum silicate.
19. (Withdrawn) A method as claimed in claim 18, in which the hydrous aluminum silicate is at least one of bentonite, fuller's earth or montmorillonite.
20. (Withdrawn) A method as claimed in claim 2, in which the binder is sodium silicate.
21. (Withdrawn) A method as claimed in claim 17, additionally comprising adding a filler to the solid lubricant and binder in an amount up to 40 volume % of the solids.

22. (Withdrawn) Solid lubricant agglomerates produced by the method of claim 8.

23. (Withdrawn) Rounded solid lubricant agglomerates produced by the method of claim 9.

24. (Withdrawn) Rounded solid lubricant agglomerates produced by the method of claim 17.

25. (Withdrawn) Solid lubricant agglomerates produced by the method of claim 5.

26. (Withdrawn) Rounded solid lubricant agglomerates produced by the method of claim 21.

27. (Currently amended) A method for producing solid lubricant agglomerates comprising:

admixing a plurality of components comprising particulate solid lubricant, an inorganic binder, and a liquid to produce a mixture having about 5 to 60 weight % solids based on the total weight of the mixture, wherein the ratio of the weight of the solid lubricant being admixed to the weight of the binder being admixed is from about 19:1 to about 1:19;

drying the mixture to produce dry agglomerates; and

classifying the dry agglomerates by size, or milling and classifying the dry agglomerates by size, into an undersize particle fraction, a desired ~~an~~ ~~on~~ size particle size fraction and an oversize particle fraction;

wherein the plurality of components further comprises the undersize particle fraction.

28. (Previously presented) The method as claimed in claim 27, wherein the oversize particle fraction is either admixed with the plurality of components to form the mixture, or is crushed to achieve the desired particle size cut.

29. (Previously presented) The method as claimed in claim 27, wherein the ratio of the weight of the solid lubricant being admixed to the weight of the binder being admixed is from about 9 : 1 to about 4 : 6.

30. (Previously presented) The method as claimed in claim 27, wherein the ratio of the weight of the solid lubricant being admixed to the weight of the binder being admixed is about 8 : 2.

31. (Previously presented) The method as claimed in claim 27, wherein the solid lubricant is at least one lubricant selected from the group consisting of hexagonal boron nitride, graphite, calcium fluoride, magnesium fluoride, barium fluoride, tungsten disulphide and molybdenum disulphide particles.

32. (Previously presented) The method as claimed in claim 27, wherein the solid lubricant is hexagonal boron nitride.

33. (Previously presented) The method as claimed in claim 32, wherein the ratio of the weight of hexagonal boron nitride being admixed to the weight of the binder being admixed is from about 9 : 1 to about 4 : 6.

34. (Previously presented) The method as claimed in claim 32, wherein the ratio of the weight of hexagonal boron nitride being admixed to the weight of the binder being admixed is about 8 : 2.

35. (Previously presented) The method as claimed in claim 32, wherein the liquid is water and the binder is hydrous aluminium silicate that is configured to be stabilized at temperatures above 850°C in the desired particle size cut.

36. (Previously presented) The method as claimed in claim 32, wherein the mixture comprises 20 to 30 weight% solids based on the total weight of the mixture.

37. (Previously presented) The method as claimed in claim 27, wherein the liquid is water and the binder is hydrous aluminium silicate that is configured to be stabilized at temperatures above 850°C in the desired particle size cut.

38. (Previously presented) The method as claimed in claim 27, further comprising admixing a filler with the solid lubricant, the binder, and the liquid to produce the mixture, wherein the solids of the mixture has up to 40 volume % filler based on the total volume of the solids.

39. (Previously presented) The method as claimed in claim 27, wherein the mixture comprises 20 to 30 weight% solids based on the total weight of the mixture.

40. (Previously presented) The method as claimed in claim 27, wherein the binder is sodium silicate.

41. (Previously presented) The method as claimed in claim 27, wherein the drying of the mixture occurs at a temperature below an effective temperature at which the binder is rendered non-dispersible in the liquid.

42. (Currently amended) The method as claimed in claim 27, wherein the binder of the ~~onsize~~ desired particle size fraction is rendered non-dispersible in the liquid.

43. (Previously presented) The method as claimed in claim 27 or 42, wherein the undersize particle fraction is supplied to the plurality of components after being classified from the dry agglomerates.

44. (Previously presented) A method for producing solid lubricant agglomerates comprising:

admixing a plurality of components comprising a particulate solid lubricant, an inorganic binder, and a liquid to produce a mixture having about 5 to 60 weight % solids based on the total weight of the mixture, wherein the ratio of the weight of the solid lubricant being admixed to the weight of the binder being admixed is from about 19:1 to about 1:19;

drying the mixture to produce dry agglomerates;

classifying the dry agglomerates by size, or milling and classifying the dry agglomerates by size, to obtain a desired particle size cut; and

causing the binder in the desired particle size cut to become non-dispersible in the liquid.

45. (Previously presented) The method as claimed in claim 44, wherein the ratio of the weight of the solid lubricant being admixed to the weight of the binder being admixed is from about 9 : 1 to about 4 : 6.

46. (Previously presented) The method as claimed in claim 44, wherein the ratio of the weight of the solid lubricant being admixed to the weight of the binder being admixed is about 8 : 2.

47. (Previously presented) The method as claimed in claim 44, wherein the solid lubricant is at least one lubricant selected from the group consisting of hexagonal boron nitride, graphite, calcium fluoride, magnesium fluoride, barium fluoride, tungsten disulphide and molybdenum disulphide particles.

48. (Previously presented) The method as claimed in claim 44, wherein the solid lubricant is hexagonal boron nitride.

49. (Previously presented) The method as claimed in claim 48, wherein the ratio of the weight of hexagonal boron nitride being admixed to the weight of the binder being admixed is from about 9 : 1 to about 4 : 6.

50. (Previously presented) The method as claimed in claim 48, wherein the ratio of the weight of hexagonal boron nitride being admixed to the weight of the binder being admixed is about 8 : 2.

51. (Previously presented) The method as claimed in claim 48, wherein the liquid is water and the binder is hydrous aluminium silicate that is configured to be stabilized at temperatures above 850°C in the desired particle size cut.

52. (Previously presented) The method as claimed in claim 48, wherein the mixture comprises 20 to 30 weight% solids based on the total weight of the mixture.

53. (Previously presented) The method as claimed in claim 48, wherein the liquid is water and the binder is hydrous aluminium silicate that is configured to be stabilized at temperatures above 850°C in the desired particle size cut.

54. (Previously presented) The method as claimed in claim 44, wherein the mixture comprises 20 to 30 weight% solids based on the total weight of the mixture.

55. (Previously presented) The method as claimed in claim 44, wherein the plurality of components further comprises a filler, wherein the solids of the mixture has up to 40 volume % filler based on the total volume of the solids.

56. (Previously presented) The method as claimed in claim 44, wherein the binder is sodium silicate.

57. (Previously presented) A method for producing solid lubricant agglomerates comprising:

admixing a plurality of components comprising a particulate solid lubricant, an inorganic binder, and a liquid to produce a mixture having about 5 to 60 weight % solids based on the total weight of the mixture, wherein the ratio of the weight of the solid lubricant being admixed to the weight of the binder being admixed is from about 19:1 to about 1:19; and

drying the mixture to produce dry agglomerates.

wherein the binder is hydrous aluminium silicate that is configured to be stabilized at temperatures above 850°C in the dry agglomerates.

58. (Previously presented) The method as claimed in claim 57, wherein the hydrous aluminium silicate comprises at least one of bentonite, fuller's earth or montmorillonite.





68. (Previously presented)        The method as claimed in claim 56, wherein the liquid is water.

69. (Previously presented)        The method as claimed in claim 56, wherein the mixture comprises 20 to 30 weight% solids based on the total weight of the mixture.

70. (Previously presented)        The method as claimed in claim 30, wherein the plurality of components further comprises a filler, wherein the solids of the mixture has up to 40 volume % filler based on the total volume of the solids.

71. (Previously presented)        The method as claimed in claim 56, wherein the binder is sodium silicate.

72. (Previously presented)        A solid lubricant agglomerate produced by the method of any one of the preceding claims.

73. (Currently amended)        A ~~spheroidal~~ rounded shape form of the solid lubricant agglomerate of claim 72.

74. (Previously presented)        The solid lubricant agglomerate of claim 72 or 73, blended or clad with a metal alloy.

75. (Previously presented)        Thermal spraying of the composition of any of claims 72 to 74.

76. (new)                    A method for producing solid lubricant agglomerates comprising:

admixing a plurality of components comprising particulate solid lubricant, an inorganic binder, and a liquid in a mixing zone to produce a mixture having about 5 to 60 weight % solids based on the total weight of the mixture, wherein the ratio of the weight of the solid lubricant being admixed to the weight of the binder being admixed is from about 19:1 to about 1:19;

drying the mixture to produce dry agglomerates; and

classifying the dry agglomerates by size, or milling and classifying the dry agglomerates by size, into an undersize particle fraction, a desired particle size fraction and an oversize particle fraction; and

recycling the undersize particle fraction into the mixing zone.

77. (new)           The method as claimed in claim 76, wherein the oversize particle fraction is either admixed with the plurality of components to form the mixture, or is crushed to achieve the desired particle size cut.

78. (new)           The method as claimed in claim 76, wherein the ratio of the weight of the solid lubricant being admixed to the weight of the binder being admixed is from about 9 : 1 to about 4 : 6.

79. (new)           The method as claimed in claim 76, wherein the ratio of the weight of the solid lubricant being admixed to the weight of the binder being admixed is about 8 : 2.

80. (new)           The method as claimed in claim 76, wherein the solid lubricant is at least one lubricant selected from the group consisting of hexagonal boron nitride, graphite, calcium fluoride, magnesium fluoride, barium fluoride, tungsten disulphide and molybdenum disulphide particles.

81. (new)           The method as claimed in claim 76, wherein the solid lubricant is hexagonal boron nitride.

82. (new)           The method as claimed in claim 81, wherein the ratio of the weight of hexagonal boron nitride being admixed to the weight of the binder being admixed is from about 9 : 1 to about 4 : 6.

83. (new)           The method as claimed in claim 81, wherein the ratio of the weight of hexagonal boron nitride being admixed to the weight of the binder being admixed is about 8 : 2.

84. (new) The method as claimed in claim 81, wherein the liquid is water and the binder is hydrous aluminium silicate that is configured to be stabilized at temperatures above 850°C in the desired particle size cut.

85. (new) The method as claimed in claim 81, wherein the mixture comprises 20 to 30 weight% solids based on the total weight of the mixture.

86. (new) The method as claimed in claim 76, wherein the liquid is water and the binder is hydrous aluminium silicate that is configured to be stabilized at temperatures above 850°C in the desired particle size cut.

87. (new) The method as claimed in claim 76, further comprising admixing a filler with the solid lubricant, the binder, and the liquid to produce the mixture, wherein the solids of the mixture has up to 40 volume % filler based on the total volume of the solids.

88. (new) The method as claimed in claim 76, wherein the mixture comprises 20 to 30 weight% solids based on the total weight of the mixture.

89. (new) The method as claimed in claim 76, wherein the binder is sodium silicate.

90. (new) The method as claimed in claim 76, wherein the drying of the mixture occurs at a temperature below an effective temperature at which the binder is rendered non-dispersible in the liquid.

91. (new) The method as claimed in claim 76, wherein the binder of the onsize particle fraction is rendered non-dispersible in the liquid.

92. (new) The method as claimed in claim 76 or 91, wherein the undersize particle fraction is supplied to the plurality of components after being classified from the dry agglomerates.